

New regional climatological network in Sardinia Region, Italy



Sardinian Environmental Protection Agency (ARPAS) has launched a project to establish the “**Regional Climatological Network - 1st intervention**” in order to set up the first stations of a regional network to monitor some **climate changes** with the greatest impacts on human activities, such as **global warming** or the **variability of rainfall and wind regimes**.

The network collects useful information to support the activities of Decentralized Functional Center - Civil Protection Department, to better estimate the frequency and the characteristics of **extreme weather events**. The installation of the aforementioned network allows the restoration of the data related to sites in which there have once been mechanical survey stations and consequent historical data.

Summary

Location: Sardinia Region, Italy

Conclusion: 2017

Focus: Risk due to extreme weather events

Challenges:

- climate changes and the frequency of extreme weather events
- establishing the initial core of the climatological regional network

CAE solutions:

- 10 automatic meteorological and thermos-pluviometric stations
- wide range of sensors: thermometer, anemometer, barometer and cloud cover sensor, snow gauge, etc
- new rain gauge PG2
- the historic and artistic value of installation sites respect and the visual and architectural impacts minimization

FEATURES

Designed with the aim of **standardization** and **openness** that identify the **modern technologies** “**Made in CAE**”, the network is composed of automatic **meteorological** and **thermopluviometric** stations that transmit the acquired data to control center in Sassari. Besides, the data is also available through **Dataservice**, a data export engine developed based on “**Web Service**” Philosophy, able to export of “raw” or aggregated and processed data.

Moreover, the project involves the implementation of software to **acquire the observations related to Global Observing System (GOS)** of World Meteorological Organization (WMO). Thus, the Regional Climatological Network is able to import from GOS the data of any stations belonging to Region VI (Europe), among which the data of the new stations in standard format, and Region I (Africa), provided that they are encoded as WMO specifications.

ARPAS required the utmost attention to **respect the historic and artistic value of installation sites** and to **minimize the visual and architectural impacts** thereby generated, in fact the host buildings vary from private homes to historic buildings to be preserved. As an example, Carloforte station was installed in the upper terrace of San Vittorio Tower (dating back to the XVIII century).



COMPOSITION

The initial core of the climatological network is composed of **10 automatic stations** that transmit data entirely via GPRS, with the exception of Carloforte Station which has been included in the regional network also via radio. Although this could be an element of vulnerability at real-time extreme weather events, the technology implemented is expandable in the future with additional telecommunication systems.

These ten automatic stations are divided in two types: **meteorological** and **thermos-pluviometric** stations. The former are equipped with a wide range of sensors, including **rain gauge PG2**, thermometer, anemometer, barometer and cloud cover sensor. The later, in one case, is also equipped with snow gauge.

To comply with the request for minimizing the visual and architectural impact, the project includes self-supporting poles that do not require tie rods. In addition, among the rain sensors, the new **rain gauge PG2** is also introduced, guaranteeing not only the **highest standards of precision, reliability and accuracy**, but also equipped with a wide mouth of only 200 cm² and a limited footprint, in order to minimize the visual impact.

All the equipment and services comply with the **technical standards** of WMO, as well as the quality, safety, ergonomics and communication standards regulated by Italian and European legislation, including the CE marking.

